

App'n. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

2

In the claims:

1. (Currently amended) An applicator for delivering atwo or more different bioactive compositions, comprising:
an inkjet dispenser comprising an orifice adapted for high-speed ejection of droplets from the dispenser, the inkjet dispenser further including a main body;
amultiple replaceable fluid reservoirs adapted configured to hold and to simultaneously deliver the bioactive compositions to the orifice for ejection therethrough, the replaceable fluid reservoirs at least partially insertable through the body, and each of the multiple reservoirs configured to hold a different bioactive composition; and
a body orifice spacer adapted to be positioned between the dispenser orifice and a target during ejection of the bioactive composition to the target.
2. (Original) The applicator according to claim 1 wherein the applicator is an inhaler.
3. (Original) The applicator according to claim 2 wherein the applicator is a pulmonary inhaler.
4. (Previously presented) The applicator according to claim 1 wherein the inkjet dispenser is a piezoelectric droplet inkjet dispenser.
5. (Original) The applicator according to claim 1 wherein the spacer is external to the body.
6. (Currently amended) The applicator according to claim 1 wherein the inkjet dispenser is adapted to dispense droplets of the bioactive compositions sized for respiratory inhalation.

Appln. S.N. 10/697,615
Amdt. dated October 28, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

3

7. (Currently amended) The applicator according to claim 1 wherein the inkjet dispenser is adapted to dispense droplets of the bioactive compositions sized for delivery to bronchial airways.

8. (Cancelled)

9. (Cancelled)

10. (Previously presented) The applicator according to claim 1 wherein the spacer is a mouthpiece spacer or a nasal spacer and the inkjet dispenser is disposed within the spacer.

11. (Currently amended) The applicator according to claim 10, further comprising a fluid conduit extending between each of the fluid reservoirs and the inkjet dispenser, the fluid conduits adapted to deliver the bioactive compositions from the fluid reservoirs to the inkjet dispenser, the fluid conduits extending at least partially through the spacer.

12. (Currently amended) The applicator according to claim 1 wherein:
the multiple fluid reservoirs include comprises a first reservoir and a second reservoir;

the spacer defines an internal pathway;

the inkjet dispenser comprises first and second fluid ejection heads positioned in the internal pathway, each fluid ejection head having a respective orifice adapted to dispense droplets of one of the bioactive compositions; and

the applicator further comprises a first fluid conduit and a second fluid conduit, the first fluid conduit extending between the first fluid reservoir and the first fluid ejection head, the second fluid conduit extending between the second fluid reservoir and the second fluid ejection head.

Appln. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

4

13. (Previously presented) The applicator according to claim 1 wherein the spacer is adapted to change a delivery direction.
14. (Previously presented) The applicator according to claim 1 wherein the inkjet dispenser is a thermal droplet inkjet dispenser.
15. (Previously presented) The applicator according to claim 1, further comprising a programmable controller adapted to control the inkjet dispenser.
16. (Previously presented) The applicator according to claim 15 wherein the programmable controller is a microprocessor operable to dispense a predetermined amount of bioactive composition from the inkjet dispenser.
17. (Original) The applicator according to claim 15 wherein the controller is programmable from a remote computer in communication with the controller.
18. (Original) The applicator according to claim 15 wherein the controller is programmable from a keypad or touch screen mounted on an external surface of the body and in communication with the controller.
19. (Currently amended) An applicator for delivering two or more different bioactive compositions, comprising:
an inkjet type dispenser comprising plural fluid ejection heads, each ejection head further comprising a dispenser orifice;
multiple containers configured for holding and simultaneously delivering the bioactive compositions to the orifices, each container holding a different bioactive composition and operably coupled to each fluid ejection head by an independent conduit;
and

Appln. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

5

a body orifice spacer positioned between the fluid ejection heads and a target during ejection of the bioactive composition to the target.

20. (Original) The applicator according to claim 19 wherein the applicator is an inhaler.

21. (Previously presented) The applicator according to claim 19 wherein the dispenser is a thermal droplet inkjet dispenser.

22. (Previously presented) The applicator according to claim 19 wherein the dispenser is a piezoelectric droplet inkjet dispenser.

23. (Original) The applicator according to claim 19 wherein the spacer is a mouthpiece spacer or a nasal spacer.

24. (Original) The applicator according to claim 19 wherein the spacer is dimensioned for at least partial insertion into a nose or mouth of a human.

25. (Previously presented) The applicator according to claim 19 wherein:
the spacer defines a delivery pathway substantially transverse to the applicator and has an open end for positioning at the target;
the dispenser orifices are disposed in the spacer; and
each dispenser orifice is spaced the same distance from the open end of the spacer.

26. (Original) The applicator according to claim 19, further comprising a programmable controller for controlling the jet dispenser.

Appl. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

6

27. (Original) The applicator according to claim 26 wherein the programmable controller is a microprocessor.

28. (Cancelled)

29. (Cancelled)

30. (Previously presented) The applicator of claim 26 wherein the controller is programmed to deliver bioactive compositions from the applicator in response to clinical or physical information.

31. (Cancelled)

32. (Previously presented) The applicator according to claim 19 wherein each fluid ejection head is in constant fluid communication with a respective container via a respective conduit such that bioactive composition from each container can flow, under the influence of gravity, to a respective fluid ejection head.

33. (Currently amended) An applicator for delivering two or more different bioactive compositions, comprising:

an inkjet dispenser comprising an orifice through which droplets are ejected in an ejection direction at high speed;

a multiple containers configured for holding and substantially simultaneously delivering the bioactive compositions to the orifice for ejection therethrough, each of the multiple containers configured to hold a different bioactive composition; and

a delivery device that changes a delivery pathway of the droplets from the ejection direction to a delivery direction.

Appln. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

7

34. (Previously presented) The applicator according to claim 33 wherein the container comprises a first container for holding and delivering a first bioactive composition and a second container for holding and delivering a second bioactive composition, and the inkjet dispenser comprises a first orifice for ejecting droplets of the first bioactive composition and a second orifice for ejecting droplets of the second bioactive composition.

35. (Previously presented) The applicator according to claim 34 wherein the inkjet dispenser comprises a thermal inkjet type dispenser.

36. (Currently amended) The applicator according to claim 33 wherein the delivery device comprises a mouthpiece extending transverse to the ejection direction for delivering droplets of the bioactive compositions in a delivery direction that is transverse to the ejection direction.

37. (Currently amended) An applicator for delivering two or more different a bioactive compositions to a mucous membrane, comprising:
an inkjet dispenser comprising an orifice, the orifice capable of ejecting the bioactive compositions therethrough;
a first container for holding configured to hold one of the bioactive compositions and operably coupled to the dispenser;
a second container configured to hold an other of the bioactive compositions and operably coupled to the dispenser;
a processor electrically connected to the jet dispenser and programmed to simultaneously deliver selected dosages of the bioactive compositions; and
an input slot for removable memory electrically connected to the processor.

38. (Original) The applicator according to claim 37, further comprising means for programming the processor.

Appln. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

8

39. (Previously presented) The applicator according to claim 38 wherein the means for programming is a keypad or a touch screen mounted on a body of the inkjet dispenser.

40. (Original) The applicator according to claim 37, further comprising a display screen electrically connected to the processor.

41. (Original) The applicator according to claim 37 wherein the input slot is an input slot for a flash memory card.

42. (Previously presented) The applicator according to claim 37, further comprising a spacer positioned between the dispenser orifice and the target during ejection of the bioactive composition to the mucous membrane and wherein the jet dispenser comprises a thermal inkjet dispenser.

43. (Currently amended) A kit for administering two or more different bioactive compositions to a subject, comprising:
an applicator, comprising an inkjet dispenser comprising an orifice for high-speed ejection of droplets from the dispenser, multiple replaceable fluid reservoirs configured to for holding and simultaneously delivering the bioactive compositions to the orifice for ejection therethrough, each of the multiple reservoirs configured to hold a different bioactive composition, and a separate body orifice spacer capable of being positioned between the dispenser orifice and the subject during ejection of the bioactive compositions to the subject; and
a programmable controller operable to actuate the inkjet dispenser.

44. (Currently amended) The kit according to claim 43, wherein the inkjet dispenser comprises first and second orifices for high-speed ejection of droplets from the dispenser, the multiple fluid reservoirs include ~~comprises~~ a first fluid reservoir and a

Appln. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

9

second fluid reservoir for holding and delivering the different bioactive compositions to the first and second orifices, respectively.

45. (Original) The kit according to claim 43, wherein the spacer connects to the applicator substantially transverse to the applicator.

46. (Previously presented) The kit according to claim 43 wherein the inkjet dispenser comprises a piezoelectric inkjet dispenser.

47. (Previously presented) The kit according to claim 43 wherein the inkjet dispenser comprises a thermal inkjet dispenser.

48. (Original) The kit according to claim 44 wherein the controller controls the ejection of the bioactive composition in response to information about a physiological condition of the subject.

49. (Currently amended) A method for administering two or more different bioactive compositions to a subject, comprising:
providing an inkjet dispenser comprising a plurality of reservoirs, each of the reservoirs configured to contain a different of bioactive substances; wherein the reservoirs are cartridges capable of being removed and replaced through an opening in the dispenser;
simultaneously dispensing ~~one or more of the bioactive compositions~~ substances from the containers through the jet dispenser into a mouth or nose; and
removing one of the reservoirs.

50. (Currently amended) A method for administering two or more different bioactive compositions to a subject, comprising:

Appl. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

10

applying to a body orifice of the subject a body orifice spacer of an applicator, the applicator comprising a main body, an inkjet dispenser, and a dispenser orifice through which droplets of the bioactive compositions are ejected, the applicator further comprising multiple containers configured to hold and simultaneously delivering the bioactive compositions, wherein each of the multiple containers is configured to hold a different bioactive composition and wherein the spacer extends substantially transverse to the main body; and

simultaneously dispensing the bioactive compositions from the dispenser toward the body orifice.

51. (Original) The method according to claim 50 wherein the body orifice is a mouth or nose of a human subject.

52. (Previously presented) The method according to claim 50 comprising dispensing the bioactive composition from the dispenser toward the body orifice in response to a physiological condition of the subject.

53. (Previously presented) The method according to claim 50 wherein the applicator further comprises a programmable controller for controlling the operation of the inkjet dispenser.

54. (Original) The method according to claim 53 wherein the controller is programmable from a remote computer in communication with the controller.

55. (Original) The method according to claim 54 wherein the controller is programmable from a keypad or a touch screen mounted on an external surface of the main body and in communication with the controller.

Appl. S.N. 10/697,615
Amdt. dated October 26, 2005
Reply to Office Action of July 28, 2005
Docket No. 10010217-3

11

56. (Original) The method according to claim 50 wherein the droplets are sized for respiratory inhalation.

57. (Original) The method according to claim 50 wherein the droplets are sized for delivery to bronchial airways.